



IDAHO DEPARTMENT OF FISH AND GAME FISHERY MANAGEMENT ANNUAL REPORT

Edward Schriever, Director

**SOUTHWEST REGION - MCCALL
2017**



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18-109**

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HIGH MOUNTAIN LAKE SURVEYS

ABSTRACT

Five high mountain lakes in the South Fork Salmon River drainage were surveyed.

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Introduction

Surveys are conducted to gather current data on fish populations in high mountain lakes (HMLs) throughout the McCall area. The data collected from these surveys provides information on stocking success, fish and amphibian species presence, water quality information, and amount of human use.

Methods

The 2017 surveys of HMLs were completed by two technicians on five lakes (Thirtythree, North Fork Fitsum #2, Ned's, Roaring Lakes #1 and #2).

Two lakes (Thirtythree and North Fork Fitsum #2) were surveyed using two sinking experimental mountain gill nets. One lake (Ned's) was surveyed using one floating experimental mountain gill net, due to its small size and shallow water depth. The remaining two lakes (Roaring Lakes #1 and #2) were surveyed using a pair of one floating and one sinking experimental mountain gill nets.

After the nets were set, a one person raft was used to gather water temperature and water conductivity data (using an electronic conductivity meter) as well as determining the maximum depth of the lake via an electronic depth finder. The other surveyor would walk around the lake's shore conducting a VES (Visual Encounter Survey); recording amphibian presence as well as collecting data regarding human use by counting fire pits and campsites. Lake inlet and outlet data including depth, width, substrate, fish presence, and spawning substrate was recorded. Fishing was also conducted by angling from shore or raft. The next morning the nets were retrieved and all fish were identified by species, weighed (g), and measured for total length (mm).

Results and Discussion

In 2017, five HMLs were surveyed in the McCall area. Ned's Lake was fishless and had not been stocked since 2003 (Table 1). North Fork Fitsum #2 contained Westslope Cutthroat Trout *Oncorhynchus clarki lewisi*. Roaring Lake #1 and #2 both contained Rainbow Trout *Oncorhynchus mykiss*, which aligned with recent stocking practices. Thirtythree Lake had Lake

Trout *Salvelinus namaycush* and Westslope Cutthroat Trout, but no Golden Trout *O. aquabonita* were captured despite having been stocked in 2015. Origin of the Lake Trout in Thirtythree Lake is unclear.

Four of the five lakes were found to have a population of amphibians present with two lakes having Western Toads *Anaxyrus boreas* and four lakes with Columbia Spotted Frogs *Rana luteiventris* (Table 2). We recommend Ned's Lake remain fishless, as it would provide deep, fishless lake habitat for amphibians, which is often rare for HMLs.

Management Recommendations

1. Continue conducting annual surveys of HMLs in order to obtain information on lakes that haven't been surveyed in recent years.
2. Discontinue stocking Golden Trout in Thirtythree Lake.
3. Discontinue stocking Ned's Lake to maintain fishless condition for amphibian habitat.

LOWLAND LAKE SURVEYS

ABSTRACT

To monitor the fish community in Lake Cascade, we completed the annual fall gillnetting survey and collected 693 fish of 12 species. Total catch included 188 Yellow Perch *Perca flavescens*, 139 Northern Pikeminnow *Ptychocheilus oregonensis*, and 72 Rainbow Trout *Oncorhynchus mykiss*. Yellow Perch and Northern Pikeminnow made up 27% and 20% of the total number caught. Mean catch for all Northern Pikeminnow has not changed significantly since we began annual fall sampling in 2012. Mean catch of Northern Pikeminnow greater than 350 mm (4) was the same as last year's catch (4). However, the percentage of fish over 350 mm (47%) was the highest since 2012. Mean catch per site of Yellow Perch greater than 250 mm (8) was about ½ the catch in 2016 (17) and mean total catch for all Yellow Perch (7) was significantly lower than any since 2012 (40).

Holiday angler counts were conducted on Lake Cascade on Memorial Day, July 4th, and Labor Day in 2017 to continue our long-term angling effort trends. Counts averaged 36 boats and 24 shore anglers, which were 50% greater than last year.

To reduce adult Northern Pikeminnow numbers, we set three Merwin trap nets in Lake Cascade for 63 days from June through August 2017. We captured 12 different fish species. The most numerous species captured were Black Bullhead *Ameriurus nebulosus*, followed by Northern Pikeminnow. We collected and removed 681 adult Northern Pikeminnow (>350 mm).

We gillnetted Lake Trout *Salvelinus namaycush* in Payette Lake to monitor changes in relative weight from previous sample years. We captured Lake Trout at all sample sites catching a total of 68. Mean total length and weight was 671 mm and 3,119 g. Individual relative weights varied greatly with a mean of 77.5.

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OBJECTIVES

To conduct investigations and implement management strategies on lowland lakes and reservoirs to protect, maintain, and enhance McCall area fish and fisheries.

LAKE CASCADE ANNUAL FISHERY SURVEY

Introduction

Since the Yellow Perch *Perca flavescens* restoration treatments were completed in 2004, 2005, and 2006 (Janssen et al. 2008), fish management activities on Lake Cascade have been directed at monitoring the changes in the fish community and continued Northern Pikeminnow

suppression efforts. Specific objectives listed in the IDFG 2013-2018 Fisheries Management Plan (IDFG 2012) included monitoring abundance, size, and age trends of the Yellow Perch and Northern Pikeminnow (NPM) *Ptychocheilus oregonensis* populations.

IDFG studies of the Yellow Perch decline in the early 2000s indicated that the presence of a NPM population dominated by fish greater than 350 mm and a marked decline or absence of juvenile Yellow Perch were warning signs of a pending Yellow Perch population collapse (Allen et al. 2009). The Lake Cascade annual fishery survey is used to monitor changes in length frequencies and to determine the need for NPM population suppression efforts to maintain the Yellow Perch fishery.

Since 2012, we have conducted an annual, standardized fish community surveys during October to monitor changes in relative abundance and length composition of the NPM and Yellow Perch populations. The surveys also provide insight into the entire fish community in Lake Cascade.

Methods

We sampled all 15 gill net sites from October 1 thru October 6, 2017. Sites and net configurations are described in Janssen et al. (2014). Each site was sampled once using one sinking and one floating, IDFG standard experimental lake survey gill net. At shoreline sites, sinking gill nets were attached to shore or in very shallow, low slope bottom sites. Nets were set where minimum water depth was at least 1 m. At shoreline sites, the floating net was set in a minimum of 3 m deep water as close to the shoreline as possible. Nets were fished overnight and pulled the next day. All fish were identified and measured for total length (nearest mm) and a subsample (5) of each 10 mm length group was weighed.

Length-frequency data was used to estimate age of Yellow Perch. Multiple attempts to age Yellow Perch using scales, otoliths, and fin rays during the last several years were unsuccessful, as many annuli were not represented in a large percentage of samples. Utilizing annual length-frequency data collected from the annual fall surveys and following strong individual age classes through the years proved to be more reliable for fish up to 8 years of age.

Results

Total catch in 2017 was 12 species and 693 fish (Table 3). Largescale Sucker *Catostomus macrocheilus* was the most numerous species (197) and was 28% of the total catch. Yellow Perch was second (188) and was 27% of the total catch. We also netted 139 NPM, 72 Rainbow Trout *Oncorhynchus mykiss*, 123 kokanee *Oncorhynchus nerka kennerlyi*, and 41 Smallmouth Bass *Micropterus dolomieu*.

We netted a total biomass of 553 kg; of which Largescale Sucker comprised 303 kg (55%). Yellow Perch, NPM, Rainbow Trout, and Smallmouth Bass biomass was 74 kg, 71 kg, 40 kg and 37 kg, respectively. Length-frequency data for all fish collected are presented in (Table 4).

Mean catch for all Yellow Perch per site (\pm 90% CI) was 12.5 ± 4 and 10 ± 5 for fish greater than 250 mm (Table 5). Yellow Perch greater than 250 and 300 mm made up 77% and 56% of total catch, respectively, and 13.5% were greater than 350 mm. The proportional stock density for Yellow Perch was 83 and Relative Stock Densities for 250, 300, and 380 mm were

77, 58, and 4, respectively (Table 6). The IDFG standard lake survey gill nets were ineffective at capturing Yellow Perch less than 140 mm and NPM less than 160 mm. Yellow Perch length frequencies for the 2017 and 2016 surveys are presented in Figure 1. Mean total lengths of age two and three Yellow Perch were approximately 150 mm and 195 mm. The mean length of two strong age classes (2009 and 2010) observed since 2012, were 365 and 325 mm, respectively. Mean relative weight of Yellow Perch greater than 125 and 250 mm were 91.9 and 89.4, respectively (Table 6).

Mean catch of NPM per gillnetting site for all sizes and fish greater than 350 mm were 9 ± 6 and 4 ± 2 respectively (Table 5). Based on the 90% confidence intervals, there was no statistical change in mean catch for all NPM, or for mean catch of fish greater than 350 mm since 2012. However, the percent of NPM greater than 350 mm collected was 47%, the highest since annual fall surveys began in 2012.

We collected 72 Rainbow Trout, of which 11 appeared to be of natural origin. Natural origin trout ranged in TL from 175 mm to 495 mm. Hatchery Rainbow Trout ranged in TL from 310 mm to 525 mm (Table 4).

We collected 41 Smallmouth Bass that ranged in length from 265 to 505 mm. Mean relative weight was 98.3, with incremental Relative Stock Densities for 300, 400 and 480 mm of 88, 46, and 5, respectively (Table 7).

Discussion

Total fish catch (693) in 2017 was nearly half of that collected in the 2016 fall survey (1,186). A strong cold front during the survey may have contributed to the low catch rates in 2017 compared with previous years. Catch declined for all species with the exception of Mountain Whitefish *Prosopium williamsoni* and hatchery Rainbow Trout.

Total catch of Yellow Perch dropped significantly in 2017 (188) from 2016 (400) and previous years (Table 5). However, mean catch of Yellow Perch per gillnetting site has not changed significantly (90% CI) since 2012.

With the exception of fewer Yellow Perch in the catch, length frequencies look very similar to 2016 (Figure 2) and 2015, with the strong 2009 and 2010 age classes still present. These two age classes are the largest of all cohorts collected and averaged 335 and 365 mm in length in 2017. Once removed by natural and angler mortality, we expect two to three strong new age classes to appear and survive due to reduced predation by smaller numbers of large Yellow Perch.

The NPM population size appears stable with no significant changes ($\pm 90\%$ CI) in mean catch per site for all NPM and NPM >350 mm. The percent of NPM >350 mm collected annually has been trending upward from 23% in 2012 to 46% in 2017 (Table 5). However, the catch of two year old NPM (Figure 3) was down significantly from the two year old catch in 2016 (Figure 4) and may be a result of predation by Yellow Perch and NPM, and/or the removal of adult NPM spawners from the North Fork Payette River with rotenone treatments in 2015. The reduction in younger NPM helps inflate the percentage of NPM > 350 mm.

We caught Rainbow Trout at every netting site indicating good survival of stocked and natural fish. Rainbow Trout catch varies greatly from year to year, but is typically well

represented in overall catch (Table 8). This variation in catch of hatchery trout is due, in large part, to the stocking of Rainbow Trout just prior to our October survey. Beginning in 2015, the annual stocking of 250 mm Rainbow Trout catchables was changed to “magnum” sized 300 mm fish and these were observed in this year’s sampling effort (Table 8).

Management Recommendations

1. Continue annual fall fishery survey to monitor Yellow Perch and NPM populations to detect need for NPM population suppression efforts to maintain the Yellow Perch fishery. These data also provide valuable insight into the status of stocked salmonids and other game fish fisheries.
2. Continue stocking “magnum”-sized hatchery Rainbow Trout.

LAKE CASCADE HOLIDAY ANGLER COUNTS

Introduction

Annual holiday fishing boat and shore angler counts began in 1996 as an inexpensive way to track changes in angling pressure between years when more comprehensive creel surveys were not completed. The angler counts coincidentally started just prior to the collapse of the Yellow Perch fishery. This has given managers a tool to monitor changes in angling pressure prior to and during the fishery collapse, as well as after the Yellow Perch fishery restoration project from 2004 through 2006. We completed holiday angler counts again in 2017.

Methods

We conducted holiday angler counts beginning at 10 AM on Memorial Day, July 4th and Labor Day. A boat was utilized to count all fishing boats and shore anglers. We averaged the counts of fishing boats and shore anglers across all three surveys. We included total angling pressure estimates from past intensive surveys in Table 9, giving a reference to what angler count data may infer in actual total annual angling pressure.

Results

Shore angler and fishing boat counts were completed on Memorial Day, July 4th and Labor Day, 2017. Mean counts for shore anglers and boats were 24 and 36, respectively (Table 9).

Discussion

Fishing boat and shore angler counts in 2017 were 50% greater than in 2016, but have fluctuated up and down since 2008. In general, Lake Cascade angling pressure has increased from the lows (10-11) of the Yellow Perch fishery crashes in the early 2000's, peaked in 2014 (63, 54) and have dropped since. However, with only three days of counts for the entire year, inclement weather on count days may have had a significant influence on some yearly means and should be recorded in the future. Making a judgement call on what inclement weather has a direct impact is difficult. Inclement weather can persist for an hour or an entire day.

Reasons for the recent drop in angler use are probably many, but would include low catch rates of Yellow Perch for many anglers on Lake Cascade and good fishing in the Boise and Snake River reservoirs.

Management Recommendation

1. Continue holiday angler counts to monitor shifts in angler use.

LAKE CASCADE NORTHERN PIKEMINNOW REMOVAL

Introduction

Studies in 2004 and 2005 indicated that Northern Pikeminnow (NPM) predation on Yellow Perch must be suppressed in order to maintain the Yellow Perch fishery in Lake Cascade (Allen et al. 2009). NPM control measures should be implemented before the majority of NPM are greater than 350 mm. It took approximately 20 years (1973 to 1994) from the earlier NPM eradication treatments for the NPM population to expand and reduce recruitment of all fish in the lake.

During the Department's Lake Cascade fishery restoration efforts from 2004 through 2006, we utilized Merwin traps to successfully capture NPM for a population estimate and to suppress their abundance (Allen et al. 2009). The large stationary traps are relatively low maintenance and can effectively fish for indefinite periods of time. We began using Merwin traps again in 2015 to remove NPM and utilized them again in 2016 and 2017.

Methods

Three traps were deployed with one located 50 m south of the Gold Fork River cut through the old abandoned railroad dike, the second on the West side of the point between Lake Fork Creek and North Fork Payette River bays, and the third just north of Buttercup Campground on the west shore of the reservoir.

The 30.5 m lead of each trap was anchored to shore and the trap was set perpendicular to shore. The traps were checked one or two times per week via boat and all fish were documented. Northern Pikeminnow and Largescale Sucker were enumerated and then euthanized as the trap was emptied. In 2017, a sample of Yellow Perch and NPM were measured for total length and all other fish species were counted and released alive.

Continuing the method change from 2016, a total length of 350 mm was used as a threshold for categorizing NPM reproductive status, as previous studies on Cascade Reservoir have found that NPM with a total length of less than 350 mm are generally immature.

Results

We operated three Merwin traps in the Northern area of Lake Cascade from May 18 through July 19, 2017, a total of 63 days per trap and a total of 189 trapping days. The three traps captured 5,402 fish and 12 different species. The most numerous species were Black Bullhead (3,652), followed by NPM (1,118), of which 681 were adults (Table 10).

Mean daily catch of NPM for all traps combined was 20.7. Mean daily catch of adult and juvenile NPM was 12.6 and 8.1, respectively. Catch by size and date of NPM are presented in Figure 5. The highest total catch of NPM > 350 mm was at the Gold Fork trap (401).

Discussion

Daily Merwin mean catch of adult NPM was 26.3, 6.9, and 12.6 fish per day (3 traps combined) for 2015, 2016, and 2017, respectively (Table 11). The 26.3 adult fish per day in

2015 included all fish >250 mm instead of >350 mm in 2016 and 2017. This change was made to better represent adult NPM.

Merwin traps are efficient in collecting NPM >250 mm in Lake Cascade. In 2003, up to six Merwins were used to collect and mark NPM and Largescale Sucker for population estimates. Subsequent lake-wide gillnetting in October revealed that 17.3 % of all NPM >250 mm had a fin clip (Janssen et al. 2006). In 2004, fin clips were observed on 9.6% of all NPM >250 collected in Merwin traps (Allen et al. 2009). In October 2004 gillnetting surveys collected 2,181 NPM >250 mm. Of those, 209 (9.6%) were marked. Therefore, we feel that these traps, depending on number and location, can be effective in the removal of adult Pikeminnow in Lake Cascade

Management Recommendations

1. Continue the use of Merwin Traps to remove adult NPM from Lake Cascade in 2018.

PAYETTE LAKE, LAKE TROUT POPULATION STUDIES

Introduction

Payette Lake fish management is focused on kokanee, Lake Trout *Salvelinus namaycush* and Rainbow Trout (IDFG Fish Management Plan). The Rainbow Trout fishery is accomplished via the stocking of catchable-size fish.

Lake Trout and kokanee have co-existed in Payette Lake since the early 1940s. Their management is much more complicated and is a balancing act between fishing rules, natural recruitment, and kokanee stocking. The management goal is to maintain both kokanee and trophy Lake Trout fisheries. The methods to achieving this goal are confounding, since kokanee are also the primary forage fish for Lake Trout in Payette Lake.

Lake Trout condition (measured as length to weight and length to relative weight relationships) and kokanee *Oncorhynchus nerka kennerlyi* numbers in Payette Lake have declined markedly since the mid-1990s. In 2013 (Janssen et al. 2014) and 2014 (Janssen et al. 2016), Lake Trout population and removal study results indicated there were large numbers of Lake Trout up to 700 mm that had not been observed in previous studies, and that removal of large numbers of Lake Trout would be necessary to recover the kokanee population and subsequently improve Lake Trout condition.

To encourage the harvest of Lake Trout, the fishing rule in Payette Lake was changed in January 2016 from one Lake Trout daily bag limit with none under 30 inches to the general rule including a six fish bag limit with no size restrictions. The relatively large, but unquantified number of Lake Trout less than 700 mm is thought to have originated from the stocking of over 300,000 fingerlings from 1979 thru 1985 and the resulting population inertia. In 2014, we conducted a Lake Trout suppression pilot study during which we removed 376 Lake Trout (Janssen et al. 2016).

In 2016, we gillnetted Lake Trout to monitor shifts in relative weight and length-weight relationship compared to previous sample years (Janssen et al. 2017). We repeated this effort in 2017.

Kokanee fingerling stocking in Payette Lake was discontinued from 1993 through 2006, but was re-instated in 2007 in response to the declining kokanee numbers and Lake Trout condition. The fingerling stockings were suspended in 2014 due to the lack of an increase in the number of kokanee spawners four years after each stocking and the continually low Lake Trout condition. Lake Trout were presumably consumed all stocked fingerling kokanee.

Methods

Lake Trout were sampled from 10/26 through 10/29/2017 using one set of two standard IDFG experimental sinking gill nets, tied end to end, for one night at each netting site. We set nets at 12 randomly chosen sites around the lake. Site locations were recorded in the IDFG lakes database. Nets were set either from and perpendicular to shore or on flats and ridges, in water no less than 12 m in depth to avoid catching large numbers of Northern Pikeminnow and Largescale Suckers. Nets were set mid-day, fished all night and pulled the following morning. All Lake Trout collected were measured for total length and euthanized. Relative weights of Lake Trout were calculated only for fish greater than 400 mm.

Results

We caught Lake Trout at every netting site and caught a total of 68 Lake Trout. Mean catch was 5.7 fish/net-night (identical to 2016 catch rates). Mean total length and weight was 671 mm and 3,119 g. Length frequencies are presented in Figure 6. Individual relative weights varied greatly with a mean of 77.5 (Figure 7). The length-weight relationship graph for this and past sampling years is presented in Figure 8.

Discussion

Lake Trout mean relative weight increased slightly from the lowest recorded in 2016 (75.4) to 77.3 (Figure 9). Mean relative weights in 2014, 2010, and 2006 were 79.3, 79.6, and 95.5 respectively. Length-frequency data show that the large group of fish from 400 to 700 mm is still present. Catch rates have not changed with the fish removal efforts made in 2014. In 2014, catch rate for a single net was 2.8 fish per night, and in 2016 and 2017 the catch rate for two single nets tied together was 5.7 fish per night.

Kokanee spawner numbers increased from 630 in 2016 to 1,080 in 2017 (See Rivers and Streams section, North Fork Payette River Kokanee Spawner Counts). It is unknown what angler Lake Trout harvest was in 2017.

Management Recommendations

1. Encourage anglers to harvest Lake Trout.
2. Sample Lake Trout population every two to three years to monitor shifts in population structure and condition (relative weights).
3. Consider intensive gill netting to remove significant numbers of Lake Trout to reduce predation on kokanee.

RIVERS AND STREAMS

ABSTRACT

The 2017 North Fork Payette River kokanee *Oncorhynchus nerka kennerlyi* spawning run estimate above Payette Lake was 1,008 fish.

We surveyed seven Lake Creek (Secesh River Tributary) tributaries, Hargrave Creek in the North Fork Payette River drainage and Shirts Creek in the Crane Creek drainage.

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OBJECTIVES

To conduct investigations and implement management strategies to protect, maintain, and enhance fish and fisheries in McCall Sub-Region's rivers and streams.

NORTH FORK PAYETTE RIVER KOKANEE SPAWNER COUNTS

Introduction

The total kokanee *Oncorhynchus nerka kennerlyi* adult escapement into the North Fork Payette River (NFPR) upstream of Payette Lake has been enumerated since 1988 to assess spawning escapement. It is also used to evaluate kokanee survival and stocking efforts. The estimate was completed again in 2017.

Methods

Twice weekly during the kokanee spawning run, the entire reach of river utilized by spawning kokanee was walked and all live spawners were counted. The total run size was estimated by multiplying the largest daily count by 1.73 (Frost and Bennett 1994). Samples of dead post-spawn kokanee that still had an intact tail were measured for total length.

Results

We completed four kokanee spawner counts on the NFPR in 2017. The first count was made on August 29 and the last on September 19th. The peak count (583) occurred on September 15th. The total spawning run estimate was 1,009 (583*1.73) fish (Table 12). Spawning fish ranged in length from 354 to 498 mm with a mean of 427 mm.

Discussion

Payette Lake kokanee numbers continue to be severely depressed. Continued efforts are needed to reduce Lake Trout abundance to reduce predation on kokanee (Janssen et al. 2016).

On January 1, 2016, the Lake Trout harvest rule changed from one fish less than 30 inches to six of any size per day to increase harvest and reduce predation pressure on kokanee. Kokanee fingerling stockings were also discontinued in 2015, as they only served as forage for Lake Trout with virtually zero surviving to spawn four years later.

Management Recommendations

1. Continue the kokanee spawner counts as they are a good indicator of in-lake survival changes.
2. Encourage anglers to harvest Lake Trout, especially fish less than 30 inches (762 mm).
3. Consider Lake Trout population reduction efforts to improve kokanee survival and subsequent forage base for Lake Trout and restore the kokanee fishery.

STREAM SURVEYS

Introduction

The McCall IDFG office annually surveys area streams that have never been surveyed previously or not for several years for fish presence, water chemistry, and physical stream measurements. We surveyed nine streams in 2017.

Methods

We sampled one transect in each stream using a backpack electrofishing unit to collect fish. Because we were only concerned with species presence, we made one pass with the electrofishing gear. Various length transects were sampled depending on stream size and included at least one pool, riffle, run complex. Fish were identified to species, counted and measured in 10 mm total length groups and released.

Stream widths and depths at four randomly selected stream cross sections were measured (top, bottom, and two relatively equal distance cross sections between top and bottom of transect). Temperature, pH, hardness, alkalinity and conductivity were also measured in each stream and are recorded in the IDFG stream survey data base.

Results

We surveyed seven Lake Creek (Secesh River Tributary) tributaries during the last two weeks of August, 2017. We sampled Hargrave Creek in the North Fork Payette River drainage on July 5, 2017 and Shirts Creek in the Crane Creek drainage on June 29, 2017 (Table 13).

We collected Bull Trout in three of the streams in the Lake Creek drainage (Burgdorf, Pete, and Three Mile creeks). Brook Trout were observed in all of the Lake Creek tributaries sampled, and Redband Trout *Oncorhynchus mykiss gairdneri* were observed only in Pete and Willow Creeks.

Fish total lengths ranged from 43 to 195 mm for Brook Trout, 65 to 195 mm for Bull Trout, and 85 to 135 mm for Redband Trout. Stream temperatures ranged from 7.2 to 11.7 °C.

Hargrave Creek sampling revealed only Brook Trout from 75 to 125 mm in length, and Shirts Creek had a large number of Speckled Dace *Rhinichthys osculus* and Bridgelip Sucker *Catostomus columbianus*. All fish observations and habitat and water chemistry measurements are recorded in the IDFG Stream Survey database.

Discussion

While many Brook Trout and a few Bull Trout were observed in the Lake Creek drainage tributaries, we did not observe any hybrids of the two species. All streams were in excellent condition with cold temperatures, stable banks and multiple habitat types typical of headwater streams.

TABLES

Table 1. Total number of fish collected by species and lake collected with standard high mountain lakes gill nets between July 24, 2017 and August 2, 2017.

| Lake Name | Catalog number | Westslope Cutthroat | Brook Trout | RBT x WCT | Bull Trout | Lake Trout | Rainbow Trout | Total fish |
|----------------------|----------------|---------------------|-------------|-----------|------------|------------|---------------|------------|
| North Fork Fitsum #2 | 07-0465 | 27 | 0 | 0 | 0 | 0 | 0 | 27 |
| Roaring Lake #1 | 07-0510 | 0 | 0 | 0 | 0 | 0 | 13 | 13 |
| Roaring Lake #2 | 07-0511 | 0 | 0 | 0 | 0 | 0 | 4 | 4 |
| Thirtythree | 07-0468 | 30 | 0 | 10 | 0 | 17 | 6 | 63 |
| Ned's (No Seeum) | 07-0517 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |

Table 2. Mountain lakes by catalog number with associated data **including** primary fish species present, (most abundant listed first), amphibian presence, stocking history, and level of human use surveyed between July 24, 2017 and August 2, 2017. Species encountered included Westslope Cutthroat Trout (WCT), Rainbow Trout (RBT), Lake Trout (LKT), Columbia Spotted Frog (CSF) and Western Toad (WT).

| Lake Name | Catalog number | Fish species observed | Year last stocked, spp | Amphibians Present | Human Use |
|----------------------|----------------|-----------------------|------------------------|--------------------|-----------|
| North Fork Fitsum #2 | 07-0465 | WCT | 2015,WCT | None | Rare |
| Roaring Lake # 1 | 07-0510 | RBT | 2016,RBT | CSF | Rare |
| Roaring Lake #2 | 07-0511 | RBT | 2016,RBT | CSF | Rare |
| Thirtythree | 07-0468 | WCT, LKT,WCTxRBT,RBT | 2015,GDT,WCT | CSF, WT | Medium |
| Ned's (NoSeeum) | 07-0517 | None | 2003,RBT | CSF, WT | Low |

Table 3. Total fish catch by species collected with gill nets in Lake Cascade in October 2017.

| Species | Total catch | % of Total | Total WGT (kg) | % of Total wt. (kg) |
|--------------------------|-------------|------------|----------------|---------------------|
| Yellow Perch | 188 | 27.1% | 73.8 | 13.3% |
| Northern Pikeminnow | 139 | 20.1% | 70.9 | 12.8% |
| Largescale Sucker | 197 | 28.4% | 302.9 | 54.7% |
| Smallmouth Bass | 41 | 5.9% | 36.6 | 6.6% |
| Rainbow Trout (hatchery) | 61 | 8.8% | 32.1 | 5.8% |
| Rainbow Trout (natural) | 11 | 1.6% | 7.5 | 1.3% |
| Kokanee (late spawners) | 13 | 1.9% | 4.4 | 0.8% |
| Black Bullhead | 21 | 3.0% | 9.5 | 1.7% |
| Black Crappie | 1 | 0.1% | 0.4 | 0.1% |
| Largemouth Bass | 2 | 0.3% | 1.3 | 0.3% |
| Mountain Whitefish | 17 | 2.4% | 6.8 | 1.2% |
| Pumpkinseed | 1 | 0.1% | 0.0 | 0.0% |
| Tiger muskellunge | 1 | 0.1% | 6.7 | 1.2% |
| Grand Total | 693 | 100.0% | 552.9 | 100.0% |

Table 4. Length frequencies by species¹ of fish collected with gill nets in Lake Cascade in October 2017.

| Length Group (mm) | LSS ¹ | YP | NPM | RBT (Hatchery) | RBT (wild) | SMB | BBH | BC | KOK (late) | LMB | MWF | PMPSD | TM |
|----------------------|------------------|----|-----|-------------------|---------------|-----|-----|----|------------|-----|-----|-------|----|
| 120-129 | | | | | | | | | | | | 1 | |
| 130-139 | | 1 | | | | | | | | | | | |
| 140-149 | | 11 | | | | | | | | | | | |
| 150-159 | | 3 | | | | | | | | | | | |
| 160-169 | | 7 | | | | | | | | | | | |
| 170-179 | 1 | 2 | 1 | | 1 | | | | | | | | |
| 180-189 | | 4 | 2 | | | | | | | | | | |
| 190-199 | | 4 | | | | | | | | | | | |
| 200-209 | | 2 | 1 | | | | | | | | | | |
| 210-219 | | 2 | 2 | | | | | | | | 1 | | |
| 220-229 | 1 | 4 | 2 | | | | | | | | | | |
| 230-239 | 3 | 1 | 1 | | | | 2 | | 1 | | 1 | | |
| 240-249 | | 3 | 7 | | | | 2 | | | | 1 | | |
| 250-259 | | 4 | 1 | | 1 | | 1 | | | | | | |
| 260-269 | 1 | 8 | 1 | | 1 | 1 | | | | | | | |
| 270-279 | | 3 | 5 | | | 2 | 1 | 1 | 1 | | | | |
| 280-289 | 1 | 10 | 9 | | | | 4 | | | | 1 | | |
| 290-299 | | 10 | 12 | | | 2 | 1 | | | | 1 | | |
| 300-309 | | 11 | 9 | | | 1 | 2 | | | | | | |
| 310-319 | | 8 | 5 | 8 | | 1 | 3 | | 1 | | | | |
| 320-329 | 1 | 17 | 5 | 5 | | | 1 | | 1 | | | | |
| 330-339 | 2 | 13 | 4 | 13 | | 2 | | | 3 | | 2 | | |
| 340-349 | 1 | 13 | 7 | 8 | 1 | 3 | 1 | | 2 | | | | |
| 350-359 | 3 | 16 | 7 | 6 | 1 | | 1 | | 2 | 1 | 3 | | |
| 360-369 | 3 | 18 | 9 | 8 | | 5 | | | 2 | | 2 | | |
| 370-379 | 4 | 6 | 7 | | | 2 | | | | | 3 | | |
| 380-389 | 5 | 6 | 4 | 3 | | 3 | 1 | | | 1 | 1 | | |
| 390-399 | 3 | 1 | 3 | 2 | | | 1 | | | | | | |
| 400-409 | 3 | | 8 | 1 | | 1 | | | | | 1 | | |
| 410-419 | 5 | | 4 | | 1 | 2 | | | | | | | |
| 420-429 | 2 | | 3 | 2 | 1 | 5 | | | | | | | |
| 430-439 | | | 2 | | | 4 | | | | | | | |

Table 4. (Continued)

| Length Group (mm) | LSS ¹ | YP | NPM | RBT (Hatchery) | RBT (wild) | SMB | BBH | BC | KOK (late) | LMB | MWF | PMPSD | TM |
|----------------------|------------------|-----|-----|-------------------|---------------|-----|-----|----|------------|-----|-----|-------|----|
| 440-449 | | | 2 | 1 | | 1 | | | | | | | |
| 450-459 | 1 | | 1 | | 1 | | | | | | | | |
| 460-469 | 3 | | 3 | | 1 | 4 | | | | | | | |
| 470-479 | 6 | | 4 | | | | | | | | | | |
| 480-489 | 7 | | 2 | 1 | | 1 | | | | | | | |
| 490-499 | 9 | | 1 | 2 | 2 | | | | | | | | |
| 500-509 | 9 | | | | | 1 | | | | | | | |
| 510-519 | 9 | | 1 | | | | | | | | | | |
| 520-529 | 18 | | 1 | 1 | | | | | | | | | |
| 530-539 | 13 | | | | | | | | | | | | |
| 540-549 | 17 | | | | | | | | | | | | |
| 550-559 | 11 | | 1 | | | | | | | | | | |
| 560-569 | 6 | | 1 | | | | | | | | | | |
| 570-579 | 9 | | | | | | | | | | | | |
| 580-589 | 11 | | | | | | | | | | | | |
| 590-599 | 9 | | | | | | | | | | | | |
| 600-609 | 7 | | 1 | | | | | | | | | | |
| 610-619 | 2 | | | | | | | | | | | | |
| 620-629 | 4 | | | | | | | | | | | | |
| 630-639 | 3 | | | | | | | | | | | | |
| 640-649 | 1 | | | | | | | | | | | | |
| 650-659 | 1 | | | | | | | | | | | | |
| 660-669 | | | | | | | | | | | | | |
| 670-679 | | | | | | | | | | | | | |
| 680-689 | 2 | | | | | | | | | | | | |
| 960-969 | | | | | | | | | | | | | 1 |
| Grand Total | 197 | 188 | 139 | 61 | 11 | 41 | 21 | 1 | 13 | 2 | 17 | 1 | 1 |

¹YP=Yellow Perch, NPM=Northern Pikeminnow, LSS=Largescale Sucker, RBT=Rainbow Trout, SMB=Smallmouth Bass, BBH=Black Bullhead, PMPSD=pumpkinseed, LMB=Largemouth Bass, MWF=Mountain Whitefish, KOK=Kokanee Salmon, BC=Black Crappie, BLS=Bridgelip Sucker.

Table 5. Total catch and mean catch per gillnetting site (one sinking and one floating net) with 90% confidence intervals of Yellow Perch, Northern Pikeminnow, Yellow Perch greater than 250 mm, and Northern Pikeminnow greater than 350 mm collected annually in Lake Cascade in 1991 and October 2012 through 2017.

| Yellow Perch | | | | | Northern Pikeminnow | | | Northern Pikeminnow > 350 mm | | | |
|---------------------|--------------|--------------------------------|--|--|---------------------|-----------------------------|-------------|---------------------------------|-------------|--------------------------------|-----------|
| Year | Total catch | Mean catch ($\pm 90\%$ CI) | Mean catch >250 mm ($\pm 90\%$ CI) | Mean Catch < 250 mm ($\pm 90\%$ CI) | Total catch | Mean catch ($\pm 90\%$ CI) | Mean Weight | Percent > 350 mm | Total catch | Mean catch ($\pm 90\%$ CI) | % > 350mm |
| 1991 ¹ | 1361 | 109 \pm 24 | Na | na | 811 | 65 \pm 5 | 755 | 83 | 673 | na | |
| 2003 ² | na | na | na | na | na | na | 979 | 97 | na | na | |
| | Yellow Perch | restoration | project | | 2004 | through | 2006 | -- | -- | -- | |
| 2008 ^{3,4} | na | 27 \pm 19/net ₄ | 18 \pm /net ⁴ | na | na | 8 \pm 1/net ⁴ | NA | 26 | na | 1 \pm 0.3\net | na |
| 2012 | 608 | 40 \pm 11 | 18 \pm 4 | 22 | 351 | 23 \pm 10 | 413 | 31 | 110 | 7 \pm 3 | 31 |
| 2013 | 739 | 49 \pm 28 | 13.5 \pm 23 | 35.5 | 213 | 14 \pm 7 | 391 | 33 | 70 | 5 \pm 2 | 33 |
| 2014 | 441 | 29 \pm 10 | 19 \pm 32 | 10 | 335 | 22 \pm 10 | 441 | 36 | 122 | 8 \pm 4 | 36 |
| 2015 | 465 | 31 \pm 10 | 14.5 \pm 5.5 | 16.5 | 275 | 18 \pm 6 | 445 | 43 | 118 | 8 \pm 4 | 43 |
| 2016 | 400 | 27 \pm 8 | 17 \pm 7 | 10 | 243 | 16 \pm 6 | 438 | 24 | 58 | 4 \pm 2 | 24 |
| 2017 | 188 | 12.5 \pm 4 | 10 \pm 5 | 2 | 139 | 9 \pm 6 | 502 | 47 | 65 | 4 \pm 2 | 47 |

1. ~12.5 site nights; 25 net nights, 14 sinking experimental nets, 11 floating experimental nets.
2. Different site each net, various netting methods combined; curtain nets and standard experimental floating and sinking gillnets September 2008 and October 2003. One year before rotenone and trapping of NPM began.
3. 9 std. exp. Nets; three floating, six sinking, each at different site
4. Catch/net instead of per site (two nets, 1 floating, and 1 sinking).

Table 6. Proportional (PSD) and Relative Stock Densities** (RSD) for 250, 300, and 380 mm Yellow Perch collected annually with gill nets in Lake Cascade in October 2012 through 2017.

| Year | PSD | RSD-250 | RSD-300 | RSD-380 |
|------|-----|---------|---------|---------|
| 2012 | 69 | 45 | 27 | 1.2 |
| 2013 | 66 | 27 | 13 | 0.7 |
| 2014 | 89 | 65 | 32 | 1.4 |
| 2015 | 57 | 47 | 27 | 1.5 |
| 2016 | 78 | 63 | 42 | 3 |
| 2017 | 83 | 77 | 58 | 4 |

**Stock Length = 130 mm, Quality Length = 200 mm, Preferred = 250 mm, Memorable = 300, Trophy = 380 mm.

Table 7. Proportional Stock Densities (PSD) and incremental Relative Stock Densities (RSD) of Smallmouth Bass collected with gill nets in Lake Cascade in October 2016. Stock, quality, preferred and trophy lengths were 180 mm, 300 mm, 400 mm, and 510 mm, respectively.

| Year | PSD | RSD-400 | RSD-480 |
|------|-----|---------|---------|
| 2013 | 95 | 55 | 0 |
| 2014 | 76 | 29 | 0 |
| 2015 | 86 | 24 | 1.5 |
| 2016 | 90 | 36 | 0 |
| 2017 | 88 | 46 | 5 |

Table 8. Total catch of Rainbow Trout collected annually during fall fish surveys in October 2012 through 2017.

| Year | Hatchery | Natural |
|------|--------------------------------|---------|
| 2012 | 145 (combined w/Natural) | -- |
| 2013 | 220 (combined with natural) | -- |
| 2014 | 22 | 6 |
| 2015 | 230 | 4 |
| 2016 | 69 | 31 |
| 2017 | 61 | 11 |

Table 9. Mean boat and shore angler counts on Lake Cascade on three major holidays; Memorial Day, July 4th, and Labor Day, in 1982, 1991, 1992, 1996 through 2010, and 2014 through 2016 with corresponding intensive creel survey angler hour estimates for 1982, 1991, 1992, 2009 and 2016.

| Year | Holiday counts | | Creel surveyed angler hours (hours * 1000) | | | |
|-------------------|--------------------|----------------------------|---|------------------|----------------|-------------------|
| | Mean boat count | Mean shore angler count | Boat anglers | Shore anglers | Ice anglers | Total Pressure |
| 1968 ¹ | -- | -- | 32.3 | 27.4 | na | 59.7 |
| 1969 ¹ | -- | -- | 38.7 | 27.9 | na | 66.6 |
| 1970 ¹ | -- | -- | 53.3 | 24.8 | na | 81.3 |
| 1982 | 154 | 85 | 254.6 | 119.9 | 39.8 | 414.2 |
| 1986 | na | na | 212.8 | 128.2 | 50.8 | 391.8 |
| 1991 | 41.5 | 32 | 135.2 | 102 | 13.8 | 237.2 |
| 1992 | 52.5 | 28 | 144.2 | 177.3 | 61.7 | 321.5 |
| 1996 | 35 | 27 | -- | -- | -- | -- |
| 1997 | 36.5 | 19 | -- | -- | -- | -- |
| 1998 | 58 | 39.5 | -- | -- | -- | -- |
| 1999 | 27 | 31 | -- | -- | -- | -- |
| 2000 | 15 | 12 | -- | -- | -- | -- |
| 2001 | 11 | 12 | -- | -- | -- | -- |
| 2002 | 16.5 | 12 | -- | -- | -- | -- |
| 2003 | 17 | 6 | -- | -- | -- | -- |
| 2004 | 23 | 8.5 | -- | -- | -- | -- |
| 2005 | 28 | 12.5 | -- | -- | -- | -- |
| 2006 | 25 | 23 | -- | -- | -- | -- |
| 2007 | 24 | 28 | -- | -- | -- | -- |
| 2008 | 34 | 37 | -- | -- | -- | -- |
| 2009 ² | 29 | 29 | 29.2 | 23.1 | 17.9 | 70.6 |
| 2010 | 22.5 | 22 | -- | -- | -- | -- |
| 2014 | 63 | 54 | -- | -- | -- | -- |
| 2015 | 44 | 42 | -- | -- | -- | -- |
| 2016 ³ | 22 | 16 | 31.8 | 22.1 | 11.1 | 65.0 |
| 2017 | 36 | 24 | -- | -- | -- | -- |

¹ Creel survey from mid-April thru late October 1968, 1969, 1970

² Creel survey from May 15, 2009 thru May 30, 2010

³ Creel survey from May 1, 2016 thru March 31, 2017

Table 10. Species composition of Merwin traps deployed in Lake Cascade during May 24 through July 24, 2017.

| Species | Number trapped | % of catch |
|--|----------------|------------|
| Black Bullhead | 3,652 | 67.6% |
| Northern Pikeminnow >350 | 681 | 12.6% |
| Northern Pikeminnow <350 | 437 | 8.1% |
| Largescale Sucker | 229 | 4.2% |
| Yellow Perch | 183 | 3.4% |
| Pumpkinseed | 104 | 1.9% |
| Rainbow Trout | 57 | 1.1% |
| Tiger Muskie | 35 | 0.6% |
| Smallmouth Bass | 14 | 0.3% |
| Largemouth Bass | 6 | 0.1% |
| Bridgelip Sucker <i>Catostomus columbianus</i> | 2 | 0.0% |
| Black Crappie | 2 | 0.0% |
| Grand Total | 5,402 | 100.0% |

Table 11. Total catch of adult and juvenile Northern Pikeminnow in Merwin traps in Lake Cascade with operation dates in 2015, 2016, and 2017.

| Year | Adult NPM >350 mm | | Juvenile NPM <350 mm | | Dates operated |
|--------|-------------------|---------------------|----------------------|---------------------|--------------------|
| | Total number* | Mean catch per day* | Total number* | Mean catch per day* | |
| 2015** | 1630** | 26.3** | 538** | 8.7** | 4/28-6/30, 62 Days |
| 2016 | 667 | 6.9 | 1978 | 20.6 | 5/20-8/25, 96 days |
| 2017 | 681 | 12.6 | 437 | 8.1 | 5/24-7/19, 54 days |

*3 traps

**2015 >250 mm and <250 mm, 2016 changed to >350 mm to better represent adult Northern Pikeminnow.

Table 12. Payette Lake kokanee spawner counts and estimated spawning run size and biomass from 1988 through 2017 in the North Fork Payette River.

| Year | Peak count | Estimated spawner numbers | KG/Lake ha ₁ | Number/Lake ha ₁ | Average spawner weight (g) | Average spawner total length (mm) |
|-------------------|---------------------|---------------------------|-------------------------|-----------------------------|----------------------------|-----------------------------------|
| 1988 | 13,200 | 22,800 | 4.6 | 13.3 | 346 | -- |
| 1989 | 8,400 | 14,500 | 2.9 | 8.4 | 349 | -- |
| 1990 | 9,642 | 16,700 | 3.5 | 9.7 | 358 | -- |
| 1991 | 10,400 | 18,000 | 5.3 | 10.5 | 505 | 365 |
| 1992 | 16,945 | 29,300 | 6.4 | 17.1 | 377 | -- |
| 1993 ^a | 34,994 | 59,310 | 8.5 | 34.6 | 245 | -- |
| 1994 | 25,550 | 44,200 | 5.5 | 25.8 | 214 | -- |
| 1995 | 32,050 | 55,450 | 4.8 | 32.3 | 147 | 260 |
| 1996 | 35,090 | 60,707 | 5.7 | 35.4 | 162 ^c | -- |
| 1997 ^d | 36,300 ^e | 64,891 | 5.6 | 37.8 | 148 | 265 |
| 1998 | 14,585 | 25,232 | 2.1 | 14.7 | 143 | 254 |
| 1999 | 15,590 | 26,971 | 2.9 | 15.7 | 184 | 276 |
| 2000 | 15,520 | 26,850 | 2.9 | 15.6 | 188 | 286 |
| 2001 ^f | 15,690 ^g | 30,144 | 4.4 | 17.6 | 250 ^b | -- |
| 2002 | 9,430 | 16,314 | -- | 9.5 | -- | -- |
| 2003 | 5,430 | 9,394 | 1.5 | 5.5 | 279 | -- |
| 2004 | 11,290 | 19,532 | -- | 11.4 | -- | -- |
| 2005 | 11,780 | 20,780 | -- | 12.1 | -- | -- |
| 2006 | 5,580 | 9,650 | -- | 5.6 | -- | 317 |
| 2007 | 3,925 | 6,790 | 1.6 | 4.0 | 401 | 340 |
| 2008 | 2,425 | 4,195 | -- | 2.4 | -- | 336 |
| 2009 | 1,290 | 2,232 | -- | 1.3 | -- | 405 |
| 2010 | 610 | 1,055 | -- | 0.6 | -- | 416 |
| 2011 | 435 | 753 | -- | 0.4 | -- | 390 |
| 2012 | 852 | 1,475 | -- | 0.8 | -- | 376/440 ^h |
| 2013 | 304 | 526 | -- | 0.3 | -- | 384/458 ^h |
| 2014 | 245 | 424 | -- | 0.25 | -- | - |
| 2015 | 185 | 320 | -- | 0.2 | -- | 455 |
| 2016 | 364 | 630 | -- | 0.4 | -- | 404 |
| 2017 | 583 | 1,008 | -- | 0.6 | -- | 383/451 ^h |

¹ 1,717 ha usable kokanee habitat in Payette Lake (Area with depth greater than 40 feet).

^a Estimate made from stream and weir counts (Frost and Bennett, 1994)

^b From gill net data of captured spawners in Payette Lake during lake survey.

^c From trawling collections made in September 1996.

^d Includes 2,092 fish spawned and removed by Nampa Fish Hatchery.

^e Does not include 2,092 fish spawned and removed by Nampa Fish Hatchery.

^f Includes 3,000 fish spawned and removed by Nampa Fish Hatchery.

^g Does not include 3,000 fish spawned and removed by Nampa Fish Hatchery.

^h Two distinct age classes.

Table 13. Transect site locations with GPS coordinates (WGS 84) (downstream end) of IDFG standard stream surveys completed in the North Fork Payette River, Lake Creek, and Crane Creek drainages in 2017. Species sampled included Redband Trout (RBT), Westslope Cutthroat Trout (WCT), Brook Trout (BKT), Bull Trout (BLT), Speckled Dace (SPD), various sucker species, Tailed Frogs (TLF), and Giant Idaho Salamander (GIS).

| Stream | Parent drainage (HUC4) | Site location | Lat. | Long. | RBT | WCT | BKT | BLT | SPD | Sucker, spp | TLF | GIS |
|-----------------|------------------------|--|----------|------------|-----|-----|-----|-----|-----|-------------|-----|-----|
| Burgdorf Creek | Lake Creek | Upstream side of Culvert on USFS RD 251 | 45.2674 | -115.9140 | -- | -- | Y | Y | -- | -- | Y | -- |
| Jeanette Creek | Lake Creek | East side of Jeanette Campground | 45.28011 | -115.91279 | -- | -- | Y | -- | -- | -- | -- | -- |
| Nethker Creek | Lake Creek | Just upstream of USFS RD 251 | 45.26090 | -115.91476 | -- | -- | Y | -- | -- | -- | Y | Y |
| Pete Creek | Lake Creek | 70m upstream from Confluence with Lake Creek | 45.29795 | -115.92773 | Y | -- | Y | Y | -- | -- | Y | Y |
| Threemile Creek | Lake Creek | Upstream of Culvert on Burgdorf road | 45.30574 | -115.92982 | -- | -- | Y | Y | -- | -- | -- | -- |
| White Creek | Lake Creek | 50 m down trail to Marshall Lake | 45.37807 | -115.90364 | -- | -- | Y | -- | -- | -- | -- | -- |
| Willow Creek | Lake Creek | Start 30 m upstream of Burgdorf road. | 45.33239 | -115.94721 | Y | -- | Y | -- | -- | -- | Y | Y |
| Hargrave Creek | NFPR | Upstream from Powerline Cut | 44.3594 | -115.5116 | -- | -- | Y | -- | -- | -- | -- | -- |
| Shirts Creek | Crane Creek | Off of BLM road | 44.43915 | -116.36645 | -- | -- | -- | -- | Y | Y | -- | -- |

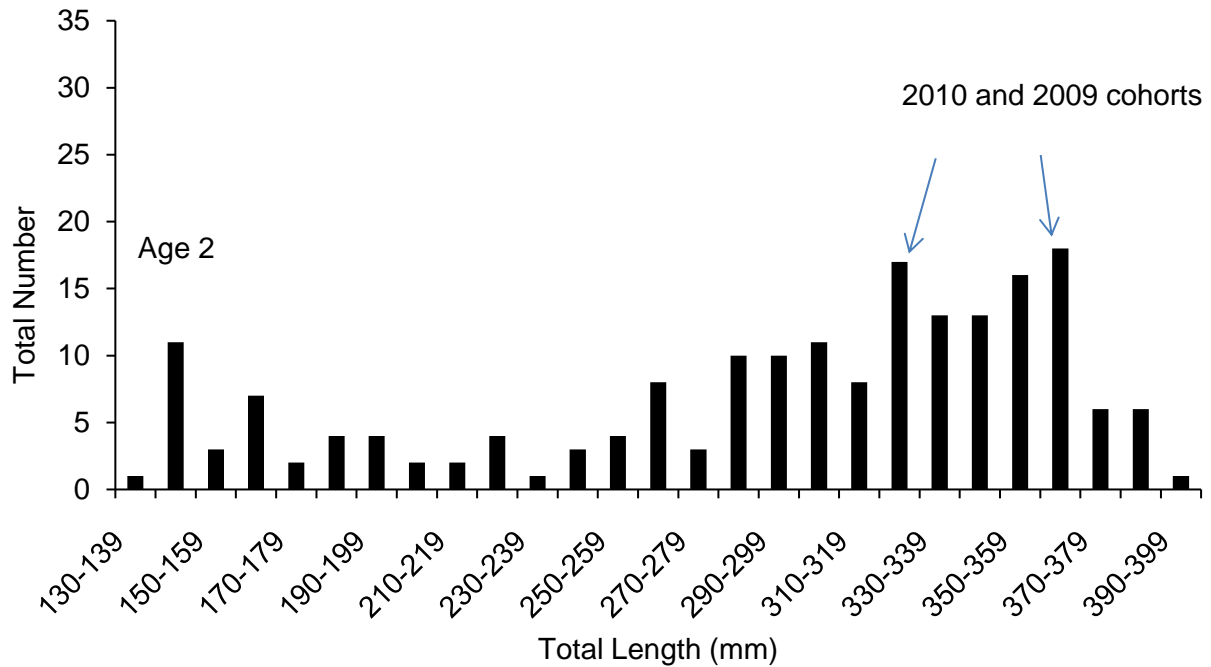


Figure 1. Length frequencies and ages of Yellow Perch collected with gill nets in Lake Cascade in October 2017.

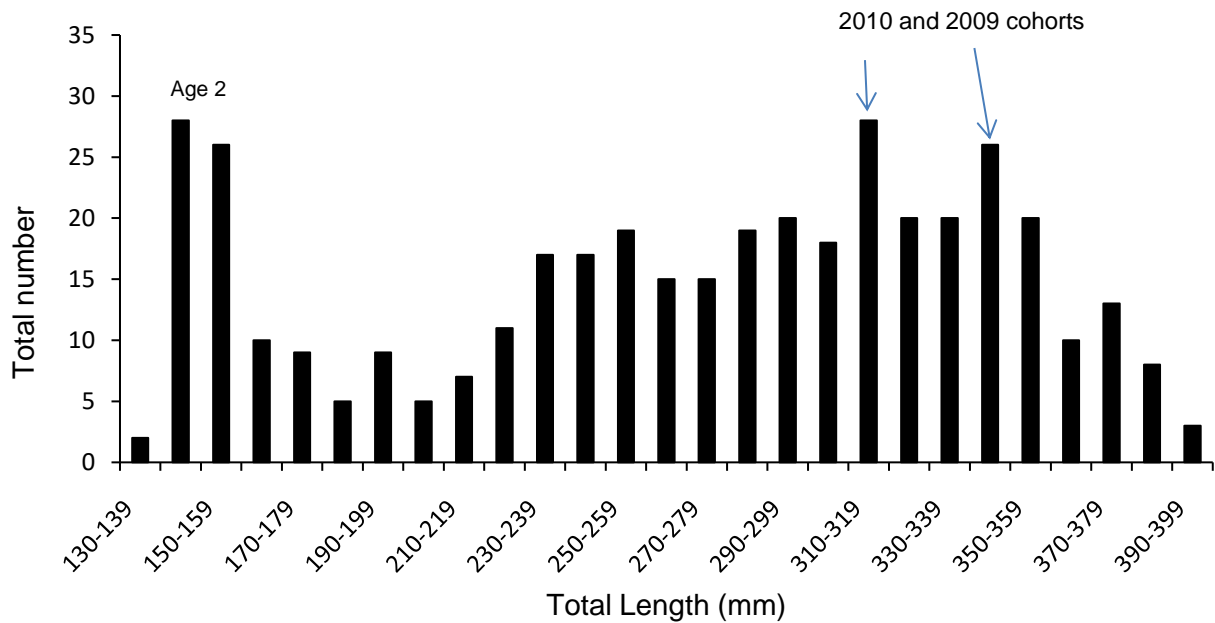


Figure 2. Length frequencies and ages of Yellow Perch collected with gill nets in Lake Cascade in October 2016.

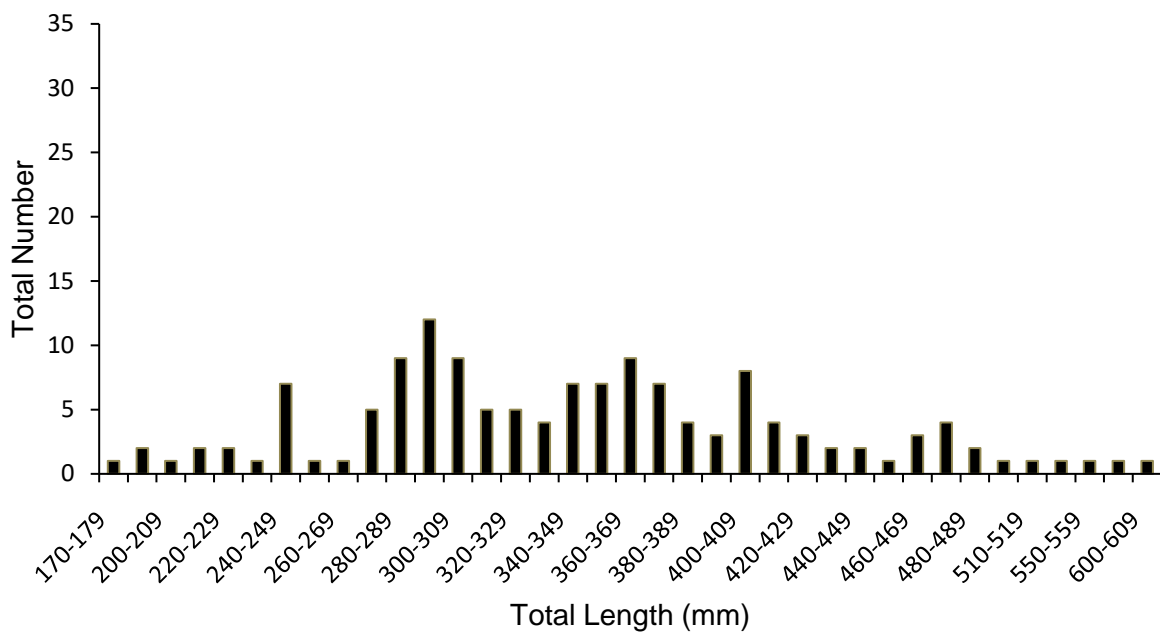


Figure 3. Length frequencies of Northern Pikeminnow collected with gill nets in Lake Cascade in October 2017.

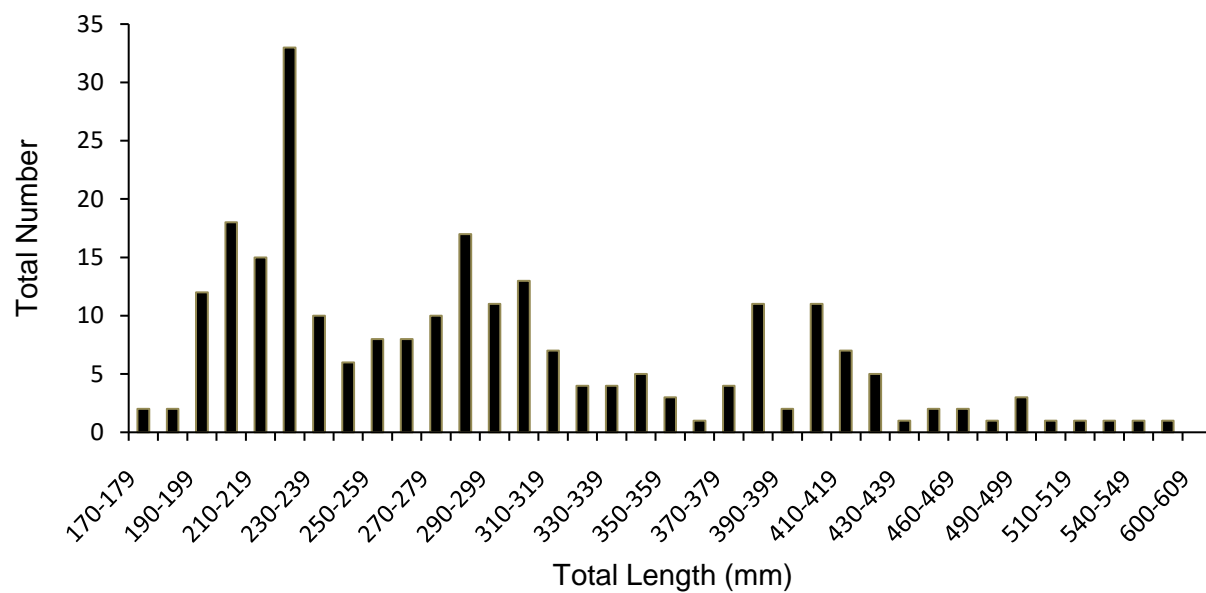


Figure 4. Length frequencies of Northern Pikeminnow collected with gill nets in Lake Cascade in October 2016.

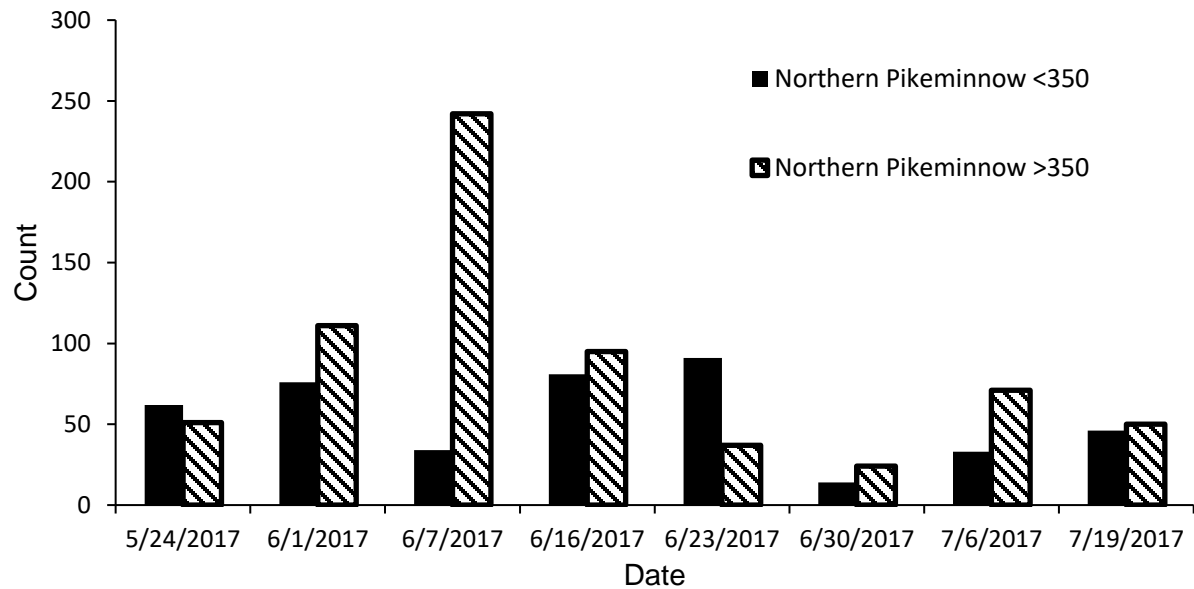


Figure 5. Northern Pikeminnow catch by size and date with Merwin traps in Lake Cascade in 2017.

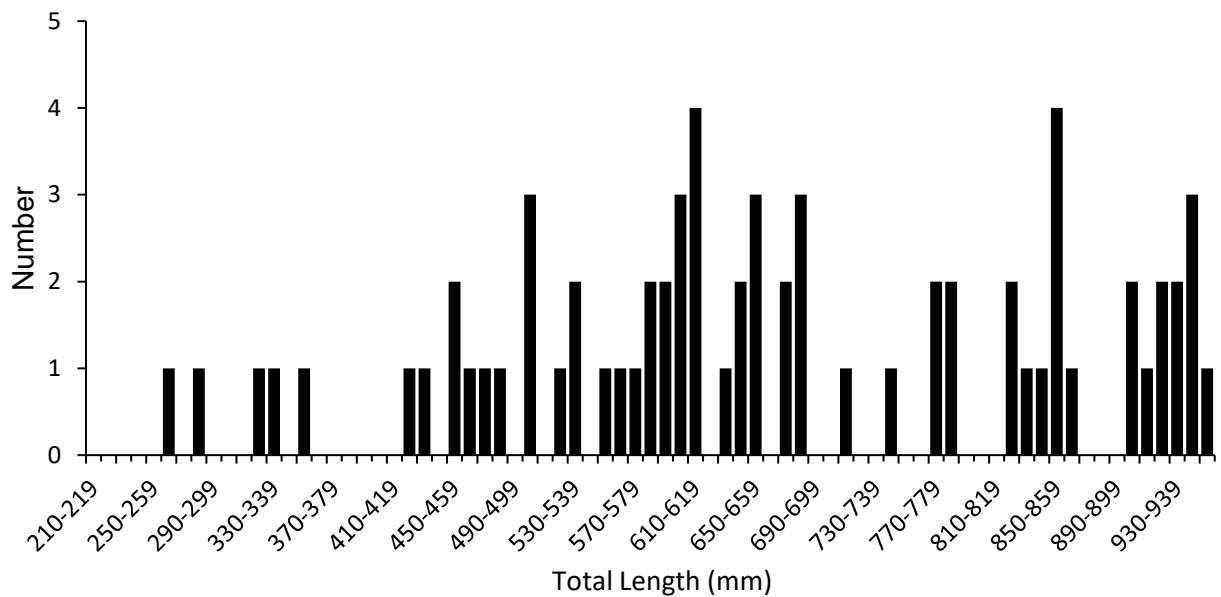


Figure 6. Length frequencies of Lake Trout collected with gill nets in Payette Lake in September 2017.

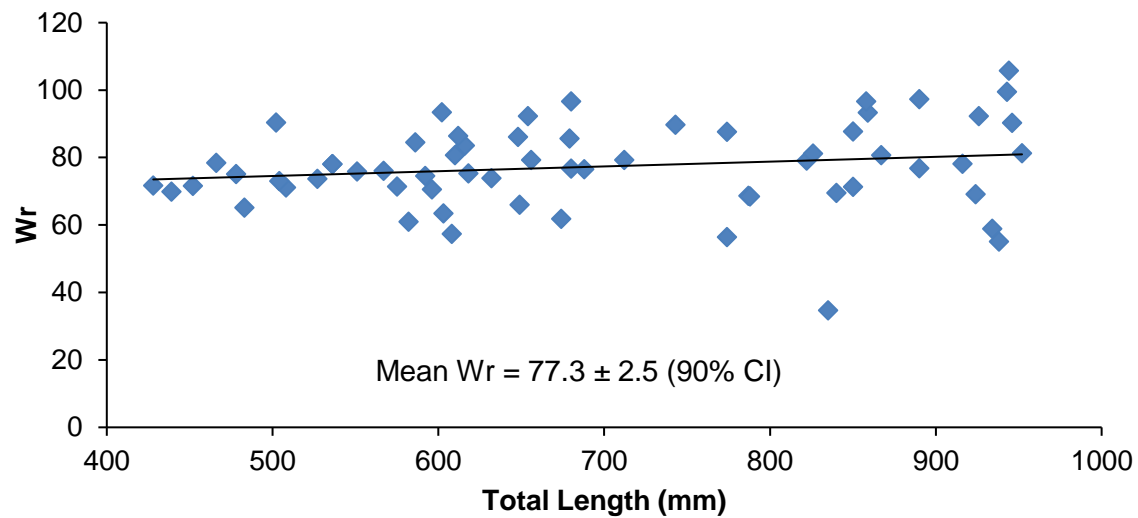


Figure 7. Relative weights of Lake Trout collected with gill nets in Payette Lake in September 2017.

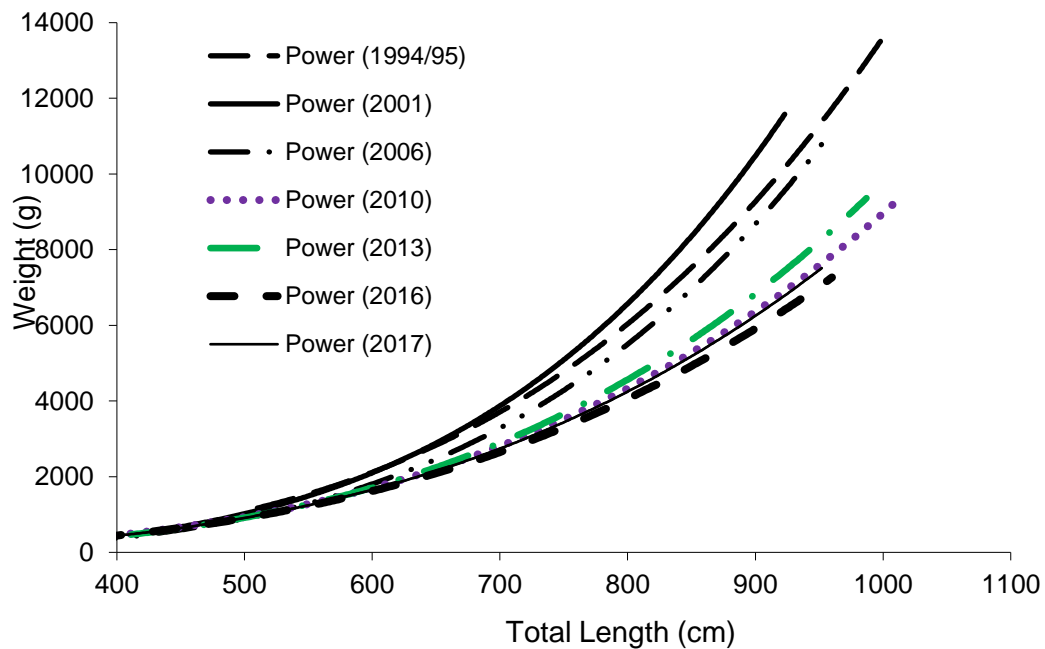


Figure 8. Length-weight relationship of Lake Trout collected with gill nets in Payette Lake in 1994/95, 2001, 2006, 2010, 2014, 2016, and 2017.

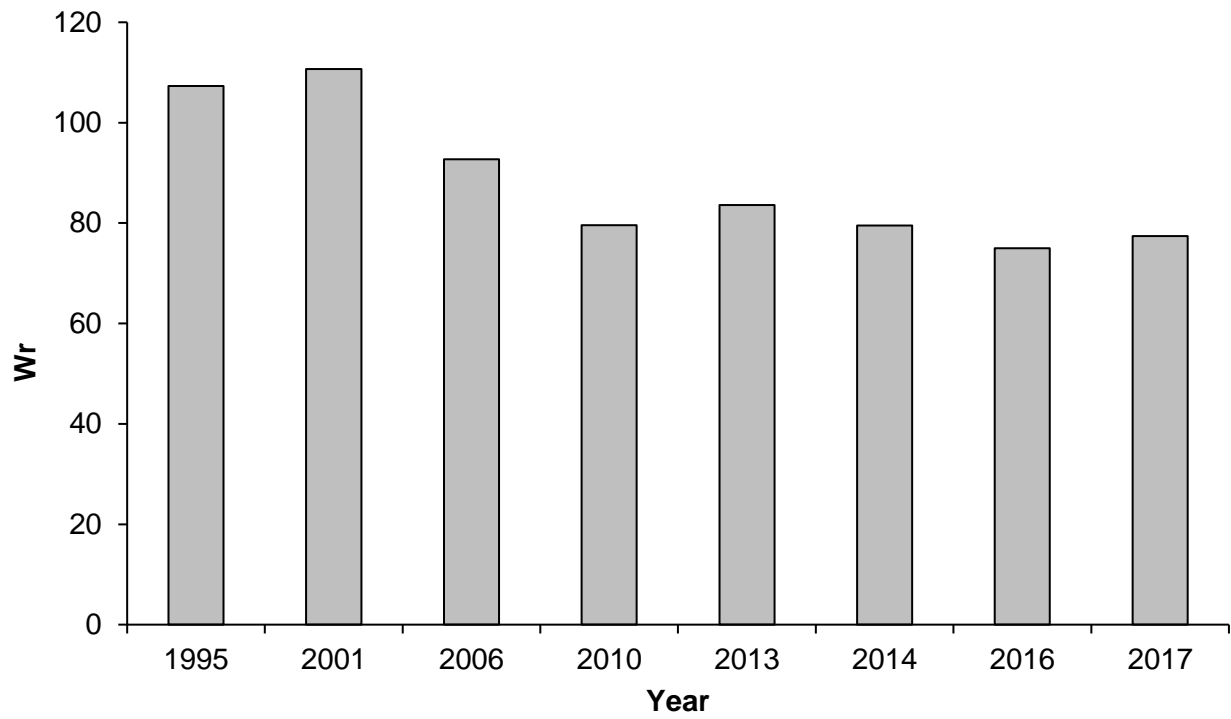


Figure 9. Mean Lake Trout relative weights (W_r) collected from Payette Lake from 1995 through 2017.

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